

Application No. 09/821,410
Amndt. dated: January 4, 2005
Reply to Office Action mailed: October 4, 2004

Amendments to the Drawings

Formal Drawings (2 sheets) accompany this response labeled as Replacement Sheets, together with prints of the Figures showing changes identified by red enclosures.

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REMARKS/ARGUMENTS:

In the specification paragraphs [0014] and [0019] have been revised for clarification; no new matter has been introduced.

In the drawings Figures 3, 4 and 5 have been amended as follows:

Figure 3: in response to the Examiner's objection, the descriptive label "DEMODULATOR" has been added to the blocks 50a and 59b.

Figure 4: in response to the Examiner's objection, the label "FIRMWARE" has been added to the block 60.

Figures 4 and 5: the label of the block 50, in both Figures, has been changed to "TRANSMISSION CHANNEL" for consistency with the label of block 50 in Figure 3.

All of these changes are shown in the accompanying prints of Figures 3, 4 and 5. No new matter has been added.

Replacement sheets containing Figures 1-7 are enclosed.

Claims 1-52 remain pending in this application. Claims 1,2-9, 12, 16, 17, 19-22, 26, 33,35-39, 46-52 have been amended. No claims have been cancelled.

Claim Objections – Office Action Section 2.

In claims 2, 3, 5, 20, 21, 22, 47 and 48, the phrase "the impulse response" is considered to be clear in context; however, to avoid delay in prosecution, the phrase has been changed to - the impulse response of the channel- - as requested by the Examiner. The scope of the claims is unchanged.

Claims 17 and 42 have been changed as requested by the Examiner.

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Double Patenting – Office Action Section 3.

Claim 34 has been amended to depend from claim 33 and the objection is now moot

Claim Rejections under 35 US 112 – Office Action Section 5.

In response to the grounds of rejection under 35 US 112, first paragraph, please note the following comments.

In claim 1:

The phrase “obtaining an output quantity of the channel” has been changed to -- obtaining an output signal of the channel- -; this is consistent with the specification – see, for example, paragraph [0019], lines 10-15 and paragraph [0021], six lines from paragraph end.

The phrase “computing a known quantity from the training sequence” has been changed to -- computing a reference value from the training signal sequence- -. Supporting description appears, for example, in paragraph [0020]. The “reference value” represented by the matrix M which is computed from the known training signal sequence $x(n)$ – see paragraph [0020], lines 2-10.

In claim 7, similar changes have been made to recite: - -operating the reference value on the output signal- -

The phrase “decoupling the training signal sequence from the output signal” now reads - - decoupling the training signal sequence from the output signal- - and is believed to be unobjectionable. The Examiner’s objection to the word “decoupling” is not understood; “decoupling” is the present participle of the verb “to decouple” and is correctly used in the context of method claim 1 to denote removal of the training signal sequence from the output signal. This results from implementation of equation 7 (see paragraph [0019]; the training signal sequence X is a component of the output signal Y and M is inversely related to X - see equation (6). If the Examiner’s objection to use of “decoupling” as a method step have not been satisfied, he is requested to provide a more detailed explanation.

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Claim 16 has been revised to address the concerns expressed by the Examiner, and the paragraph preceding equation (4) on page 8 has been clarified. No new matter has been introduced.

Paragraph [0014] has been revised for consistency with amended claim 16. Implementation is disclosed in the specification at, for example, paragraphs [0019] – [0021], [0027] and [0028], noting paragraph [0028], lines 1–6 with reference to Fig. 4 including firmware 60 “that includes code for the rapid estimation of the impulse response of the transmission media channel 50 according to the invention” and the ensuing disclosure relating to the firmware 60, DSP 62 and computer 72. More detailed description of the estimation is included in paragraphs [0019] – [0021]

Claims 26 and 39 include amendments similar to those made to claim 1.

Regarding claims 9, 17 and 46, attention is drawn to [0019], page 8, line 12 referring to the Hermitian of X, and the preceding equation expansion.

Claim 26 has been amended to avoid the single means rejection.

The specification is believed to be enabling for the invention as set forth in the claims and withdrawal of this rejection is requested.

Claim Rejections under 35 US 112 – Office Action Section 7.

In response to the grounds of rejection under 35 US 112, second paragraph:

Claims 1, 2, 12, 16, 17, 19, 20, 26, 29, 32, 33, 34, 35, 36, 39, 41, 46,, 49 and 50, the preambles of claims 1, 16, 26 and 29 now recite - -characteristics of a transmission media channel- - to provide proper antecedent basis for subsequent recitations of - - the channel- -.

In claims 6 and 21 the word “channel” has been deleted thus mootting the ground of rejection.

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In relation to estimation of the impulse response of the channel recited in claims 10 and 47, attention is drawn to paragraphs [0027] to [0029] and to paragraph [0020].

Claim 12 has been clarified (also claims 36 and 50) by reciting - signals received from the channel- -

The dependencies of claims 37, 38, 51 and 52 have been changed to provide antecedent basis for the recitation "the filter", and this ground of rejection is now inapplicable.

CONCLUSION.

It is believed all objections and grounds of rejection raised in the Office Action have been addressed and are inapplicable in view of amendments to the claims or explanations that have been provided. Favorable consideration and early allowance of the pending claims are respectfully solicited. If there are any remaining issues that could be resolved by discussion, a telephone call to the undersigned attorney at (972) 862-7428 would be appreciated.

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Respectfully submitted,



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